(b) first drive means, connected to said first retarder means, for supplying said first signal to said first retarder means, said drive means including first control means for changing said retardance from a first retardance to a second retardance by causing said first signal to change, in a direction to move toward said second retardance, from [that] a first amplitude which is required for said first retardance to a[n] second amplitude, beyond [that] a third amplitude which is required for said second retardance, for a period of time, and then causing said first signal to change to [the] said second amplitude required for said second retardance.

--2(amended). The optical retarder system of claim 1, wherein said first drive means includes means for increasing for a period of time [said] the amplitude of said signal [in excess of that amount needed to change the retardance of said first retarder means] from said first amplitude to [a new, selected value,] said second amplitude, then setting said amplitude of said signal to [that amplitude corresponding to said new, selected value] said third amplitude.

--7(amended). The optical retarder system of claim 1, further comprising:

(c) second retarder means for controlling the retardance of light passing therethrough along a first eigen-axis

thereof relative to a second eigen-axis thereof by the application of a second signal to said second retarder means, said second retarder means being disposed relative to said first retarder means so that said light can pass through said first retarder means, and said second retarder means sequentially, said first eigen-axis of said second retarder means being substantially co-planer with said second eigen-axis of said first retarder means, and said second eigen-axis of said second retarder means being substantially co-planer with said first eigen-axis of said first retarder means; and

(d) second drive means for providing to said second retarder means said second signal for application to said second retarder means, said second drive means including second control means for changing said retardance from a third retardance to a fourth retardance by causing said second signal to change, in a direction to move toward said fourth retardance, from [that] a fourth amplitude which is required for said third retardance to a[n] fifth amplitude, beyond [that] a sixth amplitude which is required for said fourth retardance, for a pre-determined period of time, and then causing said second signal to change to [the] said sixth amplitude [required for said fourth retardance].

--14(amended). An optical retarder system, comprising:

(a) first retarder means, including liquid crystal material and having a fast axis and a slow axis, for controlling the retardance of light passing therethrough along [a first eigen-] said fast axis thereof relative to [a second eigen-] said slow axis thereof by the application of an electric field to said liquid crystal material, said first retarder means having a minimum retardance and a maximum retardance;

(b) first drive means for supplying to said first retarder means a first drive signal for producing said electric field;

(c) second retarder means, including liquid crystal material and having a fast axis and a slow axis, for controlling the retardance of light passing therethrough along [a first eigen-] said fast axis thereof relative to [a second eigen-] said slow axis thereof by applying a second electric field to liquid crystal material of said second retarder means, said second retarder means being disposed relative to said first retarder means so that said light passes through said first retarder means and said second retarder means sequentially, said [first eigen-] fast axis of said second retarder means being substantially co-planer with said [second eigen-] slow axis of said first retarder

means, and said [second eigen-] slow axis of said second retarder means being substantially co-planer with said [first eigen-] fast axis of said first retarder means, said second retarder means having a minimum retardance and a maximum retardance;

(d) second drive means for supplying to said second retarder means a second drive signal for producing said second electric field; and

(e) difference control means, connected to said first drive means and to said second drive means, for adjusting the retardance of said first retarder means and the retardance of said second retarder means to respective intermediate values between said respective minimum and maximum retardances thereof so that the difference in retardance between the two is a predetermined amount.

Cl 18 (amended). An optical polarization control system, comprising:

(a) a coherent optical input signal source;

(b) a coherent optical reference signal source;

(c) detector means for receiving light from said input signal source and from said reference signal source and producing an output signal representative of the intensity of light illuminating said detector;

(d) an optical retarder system, disposed between said input signal source or said reference signal source and said detector means, for controlling the retardance of light passing therethrough, said optical retarder system having:

(i) retarder means for controlling the retardance of light passing therethrough along a first eigen-axis thereof relative to a second eigen-axis thereof in response to the application of a signal thereof; and

(ii) drive means, connected to said retarder means, for supplying said electric signal to said retarder means, said drive means including control means for changing said retardance from a first retardance to a second retardance by causing said signal to change, in a direction to move toward said second retardance, from [that] a first amplitude which is required for said first retardance to a[n] second amplitude, beyond [that] a third amplitude which is required, for said second retardance for a period of time, and then causing said signal to change to [the] said third amplitude [required for said second retardance]; and

(e) control means, responsive to said output signal and connected to said drive means, for maintaining a

predetermined polarization relationship between said input signal and said reference signal.

19 (amended). An optical polarization control system, comprising:

(a) a coherent optical input signal source;

(b) a coherent optical reference signal source;

(c) detector means for receiving light from said input signal source and from said reference signal source and producing an output signal representative of the intensity of the light illuminating said detector;

(d) an optical retarder system, disposed between said input signal source or said reference signal source and said detector means, for controlling the retardance of light passing therethrough, said optical retarder system having:

(i) first retarder means, for controlling the retardance of light passing therethrough along a [first eigen-] fast axis thereof relative to a [second eigen-] slow axis thereof by the application of a first signal thereto;

(ii) first drive means for supplying to said first retarder means said first signal;

(iii) second retarder means for controlling the retardance of light passing therethrough along a [first eigen-] fast axis thereof relative to a [second eigen-] slow axis thereof by applying a

second electric field to liquid crystal material of said second retarder means, said second retarder means being disposed relative to said first retarder means so that said light passes through said first retarder means and said second retarder means sequentially, said [first eigen-] fast axis of said second retarder means being substantially co-planer with said [second eigen-] slow axis of said first retarder means, and said [second eigen-] slow axis of said second retarder means being substantially co-planer with said [first eigen-] fast axis of said first retarder means;

(iv) second drive means for supplying to said second retarder means a second signal for producing said second signal; and

(v) difference control means, connected to said first drive means and to said second drive means, for adjusting the retardance of said first retarder means and the retardance of said second retarder means so that the difference between the two is a predetermined amount; and

(e) control means, responsive to said output signal and connected to said drive means, for maintaining a predetermined polarization relationship between said input signal and said reference signal.

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20 (amended). A method for controlling an optical retarder for controlling the retardance of light passing therethrough along a first eigen-axis thereof relative to a second eigen-axis thereof in response to the application of signal thereto, said method comprising:

(a) supplying a signal to said retarder to control its retardance;

(b) changing said retardance from a first retardance to a second retardance by causing said signal to change, in a direction to move toward said second retardance, from [that] a first amplitude which is required for said first retardance to a[n] second amplitude, beyond [that] a third which is required for said second retardance, for a period of time; and

(c) thereafter causing said signal to change to [the] said third amplitude required for said second retardance.

21 (amended). A method for controlling an optical retarder system having first and second retarders employing liquid crystal material for controlling the retardance of light passing therethrough along a [first eigen-] fast axis thereof relative to a [second eigen-] slow axis thereof by the application of an electric field to said liquid crystal material, said second retarder being disposed relative to said first retarder so that said light passes through said first retarder and said second

retarder sequentially, said [first eigen-] fast axis of said second retarder being substantially co-planer with said second, [eigen-]slow axis of said first retarder, and said [second eigen-] slow axis of said second retarder being substantially co-planer with said [first eigen-] fast axis of said first retarder means, said retarders each having minimum and maximum retardance values, said method comprising:

(a) applying a first electric field to the liquid crystal material of said first retarder;

(b) applying a second electric field to the liquid crystal material of said second retarder; and

(c) adjusting the retardance of said first retarder and the retardance of said second retarder to respective intermediate values between said respective minimum and maximum retardances thereof so that the difference in retardance between the two is a predetermined amount, by adjusting the amplitudes of said first electric field and said second electric field respective predetermined amounts.

REMARKS

This Amendment is filed in response to the Office Action dated July 27, 1993. Accordingly, it is accompanied by a request for a one-month extension of time, together with the required fee.